

DERWENT- 1990-010946

ACC-NO:

DERWENT- 199002

WEEK:

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TITLE: Electric conductivity transparent pigment mfr. - by heating indium-tin oxide and pulverising, for membrane prodn.

PRIORITY-DATA: 1988JP-0117135 (May 16, 1988)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
JP 01290527 A	November 22, 1989	N/A	005	N/A

INT-CL (IPC): C01G019/00

ABSTRACTED-PUB-NO: JP 01290527A

BASIC-ABSTRACT:

Transparent pigment with electric conductivity (1) is made of indium-tin composite oxide in which tin dissolves into indium atomic lattice as solid soln. The composite has few oxygen defects and contains 5-8 mol.% of tin, of which primary particle dia. is below 100 nm and dia. of the crystal is 15-100 nm. (1) is made by thermally treating indium-tin oxide at 800-1000 deg.C and pulverising.

USE/ADVANTAGE - Micro particles of indium oxide that contain tin as dopant (ITO) are raw materials of transparent ITO membrane. Conventionally ITO membranes are mfd. by sputtering method, of which yield is low, and cannot mfr. membrane with large area and costly vacuum appts. is necessary. This method is able to produce raw micro powder that can form membrane with high transparency and electric conductivity by painting method.

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In an example, metal indium dissolved into 30% cooled nitric acid then dissolved tin sulphate so as the molar conc. of tin to indium in the soln. to be 7%. 28% aq. ammonia was added dropwise until the pH reached 7 and co-pptd. indium and tin. 100g of pptn. was dispersed into 2 litre of 1-butanol, distilled under atmos. pressure, filtered and rinsed with acetone, dried under reduced pressure at 80 deg.C, sintered at 500 deg.C, and got ITO powder. ITO powder pulverised with zirconia beads by paint shaker for 30 hours to obtain ITO pigment powder. The transparency and the electric resistance of the membrane were 95% (wavelength=700 nm) and 5×10^3 ohm.cm respectively.